

What is claimed is:

1. A radio communication apparatus comprising:

generating means for generating noised data of a white Gaussian noise;

5 adding means for adding received data and the noise data;

channel estimating means for performing channel estimation using the received data with the noise data added; and

10 pre-equalization processing means for performing pre-equalization on transmission data based on a result of the channel estimation in said channel estimating means.

2. A radio communication apparatus comprising:

15 received level measuring means for measuring a received level of a preceding signal, a received level of a delayed signal, and a noise level;

transmission level calculating means for calculating, when the level of the preceding signal is sufficiently lower than the level of the delayed signal in a received signal, a transmission level so that the level of the preceding signal is equal to or less than the noise level of radio means; and

20 transmission control means for controlling transmit power of transmission data corresponding to the transmission level.

3. A radio communication apparatus comprising:

AD conversion means for sampling a received signal with low-density bits;

channel estimating means for performing channel estimation using received data that is digitized in said

5 AD conversion means; and

pre-equalization processing means for performing pre-equalization on transmission data based on a result of the channel estimation in said channel estimating means.

10 4. A radio communication apparatus comprising:

AD conversion means for sampling a received signal with high-density bits;

15 arithmetic shift means for shifting received data that is digitized in said AD conversion means to an upper bit side, and discarding data corresponding to the shift;

channel estimating means for performing channel estimation using the received data obtained in said arithmetic shift means; and

20 pre-equalization processing means for performing pre-equalization on transmission data based on a result of the channel estimation in said channel estimating means.

5. A radio communication apparatus comprising:

25 amplifying means having an automatic gain control function for amplifying a received signal;

AD conversion means for converting the received signal that is amplified in said amplifying means into

a digital signal;

control means for controlling a gain in said
amplifying means so that a minimum resolution level of
digitized received data is equal to or less than a noise
5 level;

channel estimating means for performing channel
estimation using the received data; and

pre-equalization processing means for performing
pre-equalization on transmission data based on a result
10 of the channel estimation in said channel estimating means.

6. A radio communication apparatus comprising:

amplifying means having a poor noise index for
amplifying a received signal;

15 AD conversion means for converting the received
signal that is amplified in said amplifying means into
a digital signal;

channel estimating means for performing channel
estimation using digitized received data; and

20 pre-equalization processing means for performing
pre-equalization on transmission data based on a result
of the channel estimation in said channel estimating means.

7. A radio communication apparatus comprising:

25 channel estimating means for performing channel
estimation using an algorithm with poor accuracy as an
algorithm for performing the channel estimation; and

pre-equalization processing means for performing pre-equalization on transmission data based on a result of the channel estimation in said channel estimating means.

- 5 8. A radio communication apparatus comprising:
 channel estimating means for performing channel estimation while limiting calculation accuracy of an algorithm for performing the channel estimation; and
 pre-equalization processing means for performing
 10 pre-equalization on transmission data based on a result of the channel estimation in said channel estimating means.

9. A communication terminal apparatus having a radio communication apparatus, said radio communication
 15 apparatus comprising:

generating means for generating noise data of a white Gaussian noise;

adding means for adding received data and the noise data;

- 20 channel estimating means for performing channel estimation using the received data with the noise data added; and

- pre-equalization processing means for performing pre-equalization on transmission data based on a result
 25 of the channel estimation in said channel estimating means.

10. A base station apparatus having a radio

communication apparatus, said radio communication apparatus comprising:

generating means for generating noise data of a white Gaussian noise;

5 adding means for adding received data and the noise data;

channel estimating means for performing channel estimation using the received data with the noise data added; and

10 pre-equalization processing means for performing pre-equalization on transmission data based on a result of the channel estimation in said channel estimating means.

11. A channel estimating method in which a received level of a preceding signal and a received signal of a delayed signal in a received signal are measured, and when the received level of the preceding signal is extremely lower than the level of the delayed signal and is equal to or less than a noise level, only the delayed signal is
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20 estimated.

12. A channel estimating method, comprising:

generating noise data of a white Gaussian noise;

adding received data and the noise data; and

performing channel estimation using the received data with the noise data added.
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13. A pre-equalization processing method for performing pre-equalization on transmission data based on a result

estimated by the channel estimating method according to claim 12.

14. A transmission method in which when a level of a preceding signal is sufficiently lower than a level of a delayed signal n a received signal, data is transmitted with a transmission level such that the level of the preceding signal is equal to or less than the noise level.